

## PATENT ABSTRACTS OF JAPAN

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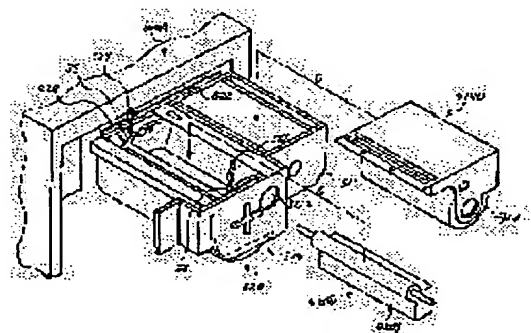
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## (54) IMAGE FORMING DEVICE

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide an image forming device that can improve, the service maintainability (of scattered toner in a developing unit cleanable property).

SOLUTION: A toner receiving member 524 is disposed on a draw-out support body 520, capable of being drawn out from a device main body 500A, on which a latent-image carrier and a rotary-type developing device are mounted and which is composed of a front side plate 521 and a rear side plate 522 and a stay member integrating the front side plate 521 and rear side plate 522. This makes it possible to clean away scattered toner accumulated on the toner receiving member 524 in a state the draw-out support 520 is drawn out from the device main body 500A, and to greatly improve the cleanable property of scattered toner and the service maintainability of the toner receiving member.



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CLAIMS

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[Claim(s)]

[Claim 1] A double-sided tape characterized by coming to prepare a base material divided into both glue line side along with the stratification plane between glue lines prepared in both sides.

[Claim 2] In seal structure of a developer supply container of making a feed hopper of a developer supply container which supplies a developer blockading While pasting up a double-sided tape with which a base material divided into both glue line side along with the stratification plane between glue lines prepared in both sides was formed on the perimeter of the above-mentioned feed hopper by glue line of the one side Seal structure of a developer supply container characterized by pasting up film material on a glue line of other sides in the above-mentioned double-sided tape as this feed hopper was blockaded.

[Claim 3] Seal structure of a developer supply container characterized by to attach film material in an adhesion side of other sides of the above-mentioned double-sided tape possible [ exfoliation ] as this feed hopper was blockaded while pasting up an adhesion side of one side of a double-sided tape with which both sides turned into an adhesion side on the perimeter of the above-mentioned feed hopper in seal structure of a developer supply container make a feed hopper of a developer supply container which supplies a developer blockade.

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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the seal structure of a developer supply container of making the feed hopper in the developer supply container which supplies a developer using the double-sided tape and double-sided tape with which the glue line was prepared in both sides blockading.

[0002]

[Description of the Prior Art] In recent years, this image formation equipment was made to miniaturize, and as it is the purposes, such as performing that maintenance easily in image formation equipments, such as a copying machine and a printer, and is shown in drawing 1, the unit A for image formation which carried out unitization, combining suitably a developer 10, the developer supply container 20 which supplies a developer to this developer 10, and photo conductor 30 grade came to be used.

[0003] Here, in the unit A for image formation which carried out unitization of the developer supply container 20 grade which supplies a developer to a developer 10 or this developer 10 in this way, in order to supply the developer held in the developer supply container 20 to a developer 10, as shown in drawing 1 and drawing 2, the opening of the feed hopper 21 which became the shape of a long and slender rectangle was carried out to this developer supply container 20.

[0004] And until it sets this unit A for image formation in image formation equipment In order to make it the developer held in this developer supply container 20 not begin to fall from a feed hopper 21, As shown in drawing 2 and drawing 3, the film material 4 which became tape-like is attached in the perimeter of the feed hopper 21 in the developer supply container 20. As this feed hopper 21 is made to blockade by the film material 4, and shown in drawing 4 in using this unit A for image formation for image formation equipment, setting, the above-mentioned film material 4 It pulls out through the outlet 22 of the developer supply container 20 with which elastic seal members (not shown), such as urethane foam for developer outflow prevention, were attached in the interior. This film material 4 is made to exfoliate from the developer supply container 20, and he carries out the opening of the above-mentioned feed hopper 21, and was trying to send a developer into a developer 10 from the developer supply container 20 through a feed hopper 21.

[0005] It is in the condition before attaching a lid 23 in the developer supply container 20 generally, and he was trying to make the perimeter of a feed hopper 21 in making the feed hopper 21 in the developer supply container 20 blockade by the film material 4 as mentioned above here, carry out heat welding of the above-mentioned film material 4 in the former, applying a pressure.

[0006] However, applying a pressure in this way, it is troublesome, and the configuration of the developer supply container 20 was also limited, and the actuation to which the perimeter of a feed hopper 21 is made to carry out heat welding of the film material 4 had further the problem that it was limited to what can carry out heat weld also of the material of the film material 4 like polyethylene.

[0007] Moreover, it was difficult to adjust the bond strength of the film material 4, when carrying out heat welding of the film material 4 in this way, and when making the film material 4 exfoliate from the developer supply container 20, superior \*\*\*\*\* of the film material 4 would not be carried out, and there was a problem of being torn on the way.

[0008] Furthermore, in recent years, recycle of the above units A for image formation comes to be performed, and making the feed hopper 21 which made the film material 4 exfoliate blockade by the film material 4 again came to be tried also in the above-mentioned developer supply container 20.

[0009] However, when making the perimeter of the feed hopper 21 in the developer supply container 20 carry out heat welding of the film material 4 again as mentioned above, it sets in the developer supply container 20 to reuse. It is difficult to carry out heat welding, applying a pressure, since the lid 23 will already be attached as shown in drawing 2. Heat welding of the film material 4 was not fully carried out to the perimeter of a feed hopper 21, but the film material 4 separated simply, and the crevice was generated and there were problems, like a developer begins to leak from a feed hopper 21.

[0010] For this reason, in making the feed hopper 21 in the above developer supply containers 20 blockade, in the former, making a feed hopper 21 blockade using adhesive tape (not shown) was examined.

[0011] However, in order to carry out the opening of the feed hopper 21 in using the unit A for image formation for image formation equipment, setting as mentioned above when adhesive tape is attached in the developer supply container 20 in this way and a feed hopper 21 is made to blockade If this adhesive tape is pulled out through the outlet 22 of the developer supply container 20 attached in the elastic seal member for developer outflow prevention inside as shown in aforementioned drawing 4 The elastic seal member prepared in the outlet 22 adheres to the adhesive face of this adhesive tape. A part of elastic seal member was damaged, or the elastic seal member slipped out of the outlet 22 together with adhesive tape, and there were problems, like a developer begins to fall outside through this outlet 22 by this.

[0012]

[Problem(s) to be Solved by the Invention] This invention makes it a technical problem to solve above various problems in the case of making the feed hopper in this developer supply container blockade by film material in the developer supply container which supplies a developer to a developer through a feed hopper as mentioned above.

[0013] Namely, can perform easily attaching film material in this invention, as the feed hopper in a developer supply container is blockaded, and when reusing the developer supply container by which the lid will be attached, it also sets. When making the film material which could attach this film material easily and was attached in the developer supply container in this way exfoliate and carrying out the opening of the feed hopper Like [ in case film material is not necessarily torn on the way and pulls out from the outlet of film material further / at the time of using adhesive tape ] Let it be a technical problem to damage a part of elastic seal member, or for an elastic seal member to be made not to separate from an outlet.

[0014] Then, in making the feed hopper in a developer supply container blockade by film material, this invention person etc. adds examination about the suitable material for attaching this film material in a developer supply container, and came to complete this invention.

[0015]

[Means for Solving the Problem] In this invention, in order to solve the above technical problems, a double-sided tape which formed a base material divided into both glue line side along with that stratification plane as a double-sided tape between glue lines prepared in both sides was developed.

[0016] Even if it is the thing of structure which formed a glue line in both sides of a base material divided into both glue line side as mentioned above with adhesives in this double-sided tape here, respectively, you may be the thing of structure which attached in both sides of this base material a double-sided adhesion sheet with which an adhesion side was formed in both sides, and formed a glue line.

[0017] Moreover, it sets in seal structure of the 1st developer supply container in this invention.

In seal structure of a developer supply container of making a feed hopper of a developer supply container which supplies a developer blockading While pasting up a double-sided tape with which a base material divided into both glue line side along with the stratification plane between glue lines prepared in both sides was formed on the perimeter of the above-mentioned feed hopper by glue line of the one side As this feed hopper was blockaded, it was made to paste up film material on a glue line of other sides in the above-mentioned double-sided tape.

[0018] Moreover, while pasting up an adhesion side of one side of a double-sided tape with which both sides turned into an adhesion side on the perimeter of the above-mentioned feed hopper, as this feed hopper is blockaded, in seal structure of the 2nd developer supply container in this invention, film material attached in the adhesion side of other sides of the above-mentioned double-sided tape possible [ exfoliation ] in seal structure of a developer supply container make a feed hopper of a developer supply container which supplies a developer blockade.

[0019]

[Function] In the above-mentioned double-sided tape in this invention, each glue line prepared in those both sides is pasted up on a pasted up object, respectively, and it is made to paste up both pasted up objects here. And if it is made to make two pasted up objects pasted up in this way separate, the base material in this double-sided tape will be divided into both the glue line side along with that stratification plane, and a field without an adhesive property will come to appear in this separated field. In addition, the bond strength of the pasted up object to each glue line in a double-sided tape needs to be higher than the reinforcement of the above-mentioned base material in this case.

[0020] moreover, like the seal structure of the 1st developer supply container in this invention While pasting up the glue line of one side in the double-sided tape with which the base material divided into both the glue line side along with the stratification plane between the glue lines prepared in both sides was formed on the perimeter of the feed hopper in a developer supply container If film material is pasted up on the glue line of the other sides in a double-sided tape and it is made to make a feed hopper blockade, while being able to attach this film material easily In case this film material is removed from a developer supply container, the base material in this double-sided tape is divided into both the glue line side along with a stratification plane as mentioned above, and the separation side of the base material which does not have an adhesive property in the perimeter and the film material of a feed hopper in a developer supply container, respectively comes to appear. For this reason, it does in this way, and when the film material made to exfoliate is pulled out through the outlet of the developer supply container attached in the elastic seal member for developer outflow prevention inside as mentioned above, an elastic seal member etc. adheres to this film material, and it is not said from an outlet that a part of elastic seal member is damaged, or an elastic seal member separates from it.

[0021] Moreover, while pasting up the adhesion side of one side in the double-sided tape with which both sides turned into an adhesion side on the perimeter of the above-mentioned feed hopper like the seal structure of the 2nd developer supply container in this invention Also when film material is pasted up on the adhesion side of the other sides in this double-sided tape possible [ exfoliation ] and it is made to make a feed hopper blockade In being able to attach film material easily and removing this film material from a developer supply container, a double-sided tape remains, where the perimeter of a feed hopper is pasted, and only this film material comes to exfoliate from a double-sided tape. For this reason, when the film material made to exfoliate is pulled out through the outlet of the developer supply container attached in the elastic seal member for developer outflow prevention inside, like the above-mentioned case, an elastic seal member etc. adheres to this film material, and it is not said from an outlet that it does in this way, and a part of elastic seal member is damaged, or an elastic seal member separates from it.

[0022]

[Embodiment of the Invention] Hereafter, the operation gestalt of the seal structure of the double-sided tape in this invention and a developer supply container is concretely explained based on an accompanying drawing.

[0023] (Operation gestalt of a double-sided tape) The double-sided tape 40 in this operation gestalt has the structure where the glue lines 42a and 42b which consisted of adhesives were

formed in both sides of a base material 41 as shown in drawing 5 , and the above-mentioned base material 41 consists of materials which are divided into the both glue line 42a and 42b side along with a stratification plane, for example, soft paper etc.

[0024] Here, in pasting up pasted up object 1a and both 1b with this double-sided tape 40, as shown in drawing 6 (A), it is made to paste up the pasted up objects 1a and 1b on each glue lines 42a and 42b of this double-sided tape 40, respectively, and while is pasting up sheet-like pasted up object 1a on glue line 42a in this double-sided tape 40 in this example.

[0025] And in making pasted up object 1a pasted up with the double-sided tape 40 in this way, and both 1b separate, as shown in drawing 6 (B) If pasted up object 1a of the shape of a sheet in this double-sided tape 40 which while pasted up on glue line 42a is pulled and it is made to make it dissociate The above-mentioned base material 41 in this double-sided tape 40 is divided into the glue line 42a [ of both sides ], and 42b side along with a stratification plane between glue line 42a pasted up on sheet-like pasted up object 1a, and glue line 42b pasted up on pasted up object 1b of another side. Separation side 41a without an adhesive property comes to appear.

[0026] In addition, it is also possible to attach in both sides of this base material 41 the double-sided adhesion sheet 43 where the adhesion side was established in both sides as this double-sided tape 40 was not limited to the following although it has structure by which the double-sided tape 40 shown in this operation gestalt formed glue lines 42a and 42b in both sides of a base material 41 with adhesives as mentioned above, for example, shown in drawing 7 , and to form glue lines 42a and 42b in both sides of a base material 41.

[0027] (Operation gestalt over the seal structure of a developer supply container) The case where the feed hopper 21 which became the shape of a long and slender rectangle prepared in the developer supply container 20 which supplies a developer to a developer 10 in the operation gestalt in the seal structure of a developer supply container here in the unit A for image formation shown in aforementioned drawing 1 is made to blockade is explained.

[0028] (Operation gestalt 1) In attaching the film material 4 in the developer supply container 20, and making the feed hopper 21 in the developer supply container 20 blockade in this operation gestalt 1, although the above-mentioned film material 4 is attached in the developer supply container 20 As shown in the operation gestalt of the above-mentioned double-sided tape, glue lines 42a and 42b are formed in both sides of a base material 41, and the double-sided tape 40 with which this base material 41 came to be divided into the both glue line 42a and 42b side along that direction of a stratification plane was used.

[0029] Here, in this operation gestalt, as the above-mentioned double-sided tape 40, as shown in drawing 8 (A) and (B), what the opening 44 corresponding to the configuration of the feed hopper 21 in the developer supply container 20 was formed, and became rectangular-head annular was used.

[0030] And the above-mentioned film material 4 was pasted up on glue line 42a of one side in this double-sided tape 40, and glue line 42b of the other sides in this double-sided tape 40 is pasted up on the perimeter of the feed hopper 21 in the developer supply container 20, and it was made to make the feed hopper 21 in the developer supply container 20 blockade by the above-mentioned film material 4 in this condition, as shown in drawing 10 and drawing 11 (A) as shown in drawing 9 . In addition, in this operation gestalt, what has the reinforcement of the base material 41 in the above-mentioned double-sided tape 40 lower than the bond strength of the glue lines 42a and 42b to the film material 4 or the developer supply container 20 was used.

[0031] And in using the unit A for image formation for image formation equipment, setting in the condition of having made the feed hopper 21 of the developer supply container 20 blockading by the film material 4 in this way The above-mentioned film material 4 is pulled out through the outlet 22 of the developer supply container 20 attached in the elastic seal member for developer outflow prevention etc. inside, as shown in aforementioned drawing 4 . This film material 4 is made to exfoliate from the developer supply container 20, and it was made to carry out the opening of the feed hopper 21.

[0032] If it is made to make the film material 4 exfoliate from the developer supply container 20 in this way, as shown in drawing 11 (B) and drawing 12 , here In the double-sided tape 40 adhered to this film material 4 and the developer supply container 20 The portion of the base

material 41 is divided into the both glue line 42a and 42b side along with a stratification plane. Where the base material 41 of separated one side is pasted up on the perimeter of a feed hopper 21, while being maintained, the base material 41 of separated another side came to be pulled out through the above-mentioned outlet 22, where the above-mentioned film material 4 is pasted.

[0033] And when the portion of the base material 41 in a double-sided tape 40 was divided into the both glue line 42a and 42b side as mentioned above, after the base material 41 which separation side 41a which does not have an adhesive property in each base material 41 separated as mentioned above appeared, and was divided into the film material 4 has pasted up, when the film material 4 was drawn out from the outlet 22 as mentioned above, it was not said abreast [ the elastic seal member prepared in the outlet 22 / the film material 4 ].

[0034] For this reason, it does not say that a part of elastic seal member prepared in the outlet 22 is damaged in case according to the thing of this operation gestalt the film material 4 is pulled out from an outlet 22 and the opening of the feed hopper 21 is carried out, or an elastic seal member is pulled out from an outlet 22 together with the film material 4, and did not begin be said that a developer falls from an outlet 22.

[0035] In addition, in attaching the film material 4 in the developer supply container 20, and making the feed hopper 21 in the developer supply container 20 blockade in the above-mentioned operation gestalt, it is in the condition of having pasted up the double-sided tape 40 on the film material 4. Although this double-sided tape 40 is pasted up on the perimeter of the feed hopper 21 of the developer supply container 20 and it was made to make the feed hopper 21 in the developer supply container 20 blockade by the film material 4 It is possible to paste up this double-sided tape 40 on the perimeter of the feed hopper 21 in the developer supply container 20 previously, to paste up the film material 4 on this double-sided tape 40 after that, and to also make the feed hopper 21 in the developer supply container 20 blockade by the film material 4.

[0036] (Operation gestalt 2) In attaching the film material 4 in the developer supply container 20, and making the feed hopper 21 in the developer supply container 20 blockade in this operation gestalt 2, although the above-mentioned film material 4 is attached in the developer supply container 20 As shown in drawing 13 (A) and (B), the double-sided tape 50 with which both sides of a base material 51 turned into the adhesion sides 52a and 52b is used. The double-sided tape 50 which the opening 54 corresponding to the configuration of the feed hopper 21 in the developer supply container 20 was formed in the center section, and became rectangular-head annular was also used.

[0037] And the above-mentioned film material 4 is pasted up on adhesion side 52a of one side in this double-sided tape 50 possible [ exfoliation ], it is in this condition, adhesion side 52b of the other sides in this double-sided tape 50 is pasted up on the perimeter of the feed hopper 21 in the developer supply container 20, as shown in drawing 14 (A), and it was made make the feed hopper 21 in the developer supply container 20 blockade by the above-mentioned film material 4 in this operation gestalt 2. In addition, while making high bond strength of the double-sided tape 50 to the developer supply container 20, bond strength of the double-sided tape 50 to the film material 4 is weakened, and it was made for the film material 4 to exfoliate simply from this double-sided tape 50 in this operation gestalt. In weakening bond strength of the double-sided tape 50 to the film material 4, while making high bond strength of the double-sided tape 50 to the developer supply container 20 here Use that from which the bond strength to the adhesion sides 52a and 52b of a double-sided tape 50 differs for the material of the developer supply container 20, and the material of the film material 4, or Make the class of adhesives used for each adhesion side 52a and 52b of a double-sided tape 50 change, or It is made to change bond strength [ as opposed to the adhesion sides 52a and 52b of a double-sided tape 50 by changing the concavo-convex condition in the surface of the developer supply container 20 adhered to the adhesion sides 52a and 52b of a double-sided tape 50, or the film material 4 etc. ].

[0038] And in using the unit A for image formation for image formation equipment, setting in the condition of having made the feed hopper 21 of the developer supply container 20 blockading by the film material 4 in this way As shown in aforementioned drawing 4 , pull out the film material 4 through the outlet 22 of the developer supply container 20 attached in the elastic seal member



for developer outflow prevention etc. inside, this film material 4 is made to exfoliate from the developer supply container 20, and it was made to carry out the opening of the feed hopper 21. [0039] Since the bond strength of the film material 4 to adhesion side 52a of this double-sided tape 50 is weak as mentioned above when the film material 4 is made to exfoliate from the developer supply container 20 in this way and it is made to carry out the opening of the feed hopper 21 here, As shown in drawing 14 (B) and drawing 15 , a double-sided tape 50 remains in the condition [ having pasted the developer supply container 20 ]. It was not said abreast [ the elastic seal member which only this film material 4 exfoliated from the developer supply container 20, came to be pulled out through the above-mentioned outlet 22, and was prepared in the outlet 22 / the film material 4 ].

[0040] Consequently, like the thing of the above-mentioned operation gestalt 1, in case the film material 4 is pulled out from an outlet 22, it does not say that a part of elastic seal member prepared in the outlet 22 is damaged, or an elastic seal member is pulled out from an outlet 22 together with the film material 4, and did not begin be said that a developer falls from an outlet 22 also in the thing of this operation gestalt 2.

[0041]

[Effect of the Invention] In a double-sided tape [ in / as explained in full detail above / this invention ] Since the base material divided into both the glue line side along with a stratification plane between the glue lines prepared in both sides was formed, If it is made to make two pasted up objects pasted up in this way separate after pasting up both pasted up objects by the glue line of the both sides The base material in this double-sided tape is divided into both the glue line side along with that stratification plane, a field without an adhesive property comes to appear in this separated field, and it can be used now for a different use from the conventional double-sided tape.

[0042] Moreover, it sets in the seal structure of the 1st and 2nd developer supply containers in this invention. Since in attaching film material in a developer supply container so that the feed hopper in a developer supply container may be blockaded a double-sided tape is pasted up on the perimeter of the feed hopper in a developer supply container and film material was attached in it, respectively, [ when installation of film material becomes very easy and it reuses a developer supply container compared with the case of the former to which the perimeter of a feed hopper is made to carry out heat welding of the film material, applying a pressure ] It can perform easily making the feed hopper of the developer supply container in the condition that the lid etc. was attached blockade by film material, and reclamation of a developer supply container can also be easily performed now.

[0043] Moreover, it sets in the seal structure of the 1st and 2nd developer supply containers in this invention. When pulling out film material from the outlet in a developer supply container and carrying out the opening of the feed hopper, in order not to say that a double-sided tape adheres to this film material, and an adhesion side appears, In case film material is pulled out from an outlet, the elastic seal member prepared in the interior of an outlet adheres to film material. It does not say that a part of this elastic seal member is damaged, or an elastic seal member is pulled out from an outlet together with film material, and a developer did not necessarily begin to have fallen from an outlet.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** It is outline cross-section explanatory drawing of the unit for image formation.

**[Drawing 2]** It is the outline perspective diagram of the conventional example having shown the condition of making the feed hopper in a developer supply container blockading by film material.

**[Drawing 3]** It is partial cross-section explanatory drawing of the conventional example having shown the condition of having made the feed hopper in a developer supply container blockading by film material.

**[Drawing 4]** It is partial explanatory drawing having shown the condition of pulling out film material from the outlet of a developer supply container.

**[Drawing 5]** It is the outline cross section having shown 1 operation gestalt of the double-sided tape of this invention.

**[Drawing 6]** It is cross-section explanatory drawing having shown the condition of making both [ on which both pasted up objects were pasted up with the double-sided tape in this operation gestalt / the condition and both the pasted up objects ] separating.

**[Drawing 7]** It is the outline cross section having shown other operation gestalten in the double-sided tape of this invention.

**[Drawing 8]** It is the plan and cross section having shown the condition of the double-sided tape used in the operation gestalt 1 of the seal structure of the developer supply container in this invention.

**[Drawing 9]** In the seal structure of the developer supply container in the operation gestalt 1, it is the plan having shown the condition of having pasted up the double-sided tape on film material.

**[Drawing 10]** In the seal structure of the developer supply container in the operation gestalt 1, it is the outline perspective diagram having shown the condition of attaching film material in a developer supply container so that the feed hopper in a developer supply container may be blockaded.

**[Drawing 11]** In the seal structure of the developer supply container which can be set, it is cross-section explanatory drawing having shown the condition of having removed the condition and film material which the double-sided tape was attached [ material ] in the perimeter of the feed hopper in a developer supply container, and made the feed hopper blockading by film material from the developer supply container operation gestalt 1.

**[Drawing 12]** In the seal structure of the developer supply container in the operation gestalt 1, it is cross-section explanatory drawing having shown the condition of removing the film material attached in the developer supply container from a developer supply container.

**[Drawing 13]** It is the plan and cross section of a double-sided tape which were used in the operation gestalt 2 of the seal structure of the developer supply container in this invention.

**[Drawing 14]** In the seal structure of the developer supply container in the operation gestalt 2, it is cross-section explanatory drawing having shown the condition of having made the condition and film material which the double-sided tape was attached [ material ] in the perimeter of the feed hopper in a developer supply container, and made the feed hopper blockading by film material exfoliating from a double-sided tape, and carrying out the opening of the feed hopper.

[Drawing 15] In the seal structure of the developer supply container in the operation gestalt 2, it is cross-section explanatory drawing having shown the condition of making film material exfoliating from a double-sided tape.

[Description of Notations]

4 Film Material

20 Developer Supply Container

21 Feed Hopper

40 Double-sided Tape

41 Base Material

42a, 42b Glue line

50 Double-sided Tape

52a, 52b Adhesion side

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[Translation done.]